

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A plate type heat exchanger comprising a plurality of plates alternately turned and stacked on one another, each of said plates having: a seal portion, which is provided on an outer peripheral portion of the plate and with an interior of which inflow and outflow ports of heat exchanging fluids are communicated; and heat-transfer surface elements formed in a mountain-shaped manner in a thicknesswise direction of the plate and arranged to form flow passages within the seal portion, ~~characterized in that~~ wherein the heat-transfer surface elements are in the form of a quadrangular pyramid having flat top, and the seal portion having flat portions on outer peripheral portions of the flow passages to define a bottom surface, and mountain portions, which extend upright from the flat portions and of which tops are formed to be flat in shape, and wherein the flat portions and the mountain portions on the seal portion are arranged alternately in a flow direction of the flow passages.

2. (Original) A plate type heat exchanger according to claim 1, wherein the flat portions and mountain portions of the vertically adjacent plates are stacked on one another to overlap each other.

3. (Currently Amended) A plate type heat exchanger according to claim 1, wherein a part of the heat-transfer surface elements comprises a flat portion defining bottom surface of the plate and a mountain portion, which extends upright from the flat portion and of which a top is formed to be flat in shape, and wherein the ~~vertically adjacent~~ flat

~~portions and mountain portions of the heat-transfer surface elements~~ are stacked on one another to and overlap each other the vertically adjacent mountain portions of the heat-transfer surface elements.

4. (Currently Amended) A plate type heat exchanger according to claim 1, wherein a part of the heat-transfer surface elements arranged centrally in a widthwise direction of the plate comprises a flat portion defining bottom surface of the plate and a mountain portion, which extends upright from the flat portion and of which a top is formed to be flat in shape, and wherein the vertically adjacent flat portions and mountain portions of the part of the heat-transfer surface elements are stacked on one another to and overlap each other the vertically adjacent mountain portions of the part of the heat-transfer surface elements.

5. (Currently Amended) A plate type heat exchanger according to claim 1, wherein ~~the flat portions and the mountain portions on the seal portion are arranged alternately in a flow direction of the flow passages and the flat portions and mountain portions of the plates are stacked on one another to and overlap each other the vertically adjacent mountain portions.~~

6. (Currently Amended) A plate type heat exchanger according to claim 1, wherein further comprising R410A flows flowing through one of the flow passages defined by the stacked plates and water flows flowing through the other of the flow passages.

7. (Currently Amended) A plate type heat exchanger according to claim 1, wherein further comprising carbon dioxide flows flowing through one of the flow passages defined by the stacked plates and water flows flowing through the other of the flow passages.

8. (Currently Amended) A plate type heat exchanger according to claim 1, wherein further comprising a zeotropic refrigerant mixture flows flowing through at least one of the flow passages defined by the stacked plates counter to a flow through the other of the flow passages.

9. (New) A plate type heat exchanger according to claim 1, wherein bottoms of the mountain portions have a triangular shape.

10. (New) A plate type heat exchanger according to claim 1, wherein tops of mountain portions in the seal portion of one plate contact flat portions in the seal portion of another plate disposed above the one plate.

11. (New) A plate type heat exchanger according to claim 1, wherein all of the plurality of plates are identical and are alternately turned so that tops of mountain portions in the seal portion of one plate contact flat portions in the seal portion of another plate disposed above the one plate.

12. (New) A plate type heat exchanger according to claim 1, wherein a part of the heat-transfer surface elements comprises a flat portion defining bottom surface of the plate and a mountain portion, which extends upright from the flat portion and of which a top is formed to be flat in shape, and wherein the flat portions of the heat-transfer surface elements are stacked on and overlap the vertically adjacent mountain portions of the heat-transfer surface elements.

13. (New) A plate type heat exchanger according to claim 1, wherein a part of the heat-transfer surface elements arranged centrally in a widthwise direction of the plate comprises a flat portion defining bottom surface of the plate and a mountain portion, which extends upright from the flat portion and of which a top is formed to be flat in shape, and wherein the flat portions of the part of the heat-transfer surface elements are stacked on and overlap the vertically adjacent mountain portions of the part of the heat-transfer surface elements.